

perature coefficients" obtained by critical comparison of historic and modern data. (See *Les Hivers*, p. 10 ff.) The departures of the coefficients from the normal of 50 (as given on p. 200 of the work mentioned) are found totaled in Table 4.<sup>1</sup>

Relative to the last result, 247 and 203, see remark on the winter of 1895.

TABLE 4.—Totals of the departures of the temperature coefficients

C		D	
1606-1627.....	306	1628-1649.....	138
1695-1716.....	388	1717-1738.....	135
1784-1805.....	336	1806-1827.....	222
1873-1894.....	247	1895-1916.....	203

The above table is numbered 5 in the original text.

These statistical data appear to indicate the correctness of the conclusion that the very remarkable phenomenon pointed out by Prof. A. Wagner is to be referred to a long-period oscillation coming to light for centuries in the historical data on winter temperatures. It was shown at an earlier date<sup>2</sup> that this 89-year periodicity agrees with—and is thus caused by—an oscillation in solar activity, both in the changing size of the spotted part of the sun's surface and also in the variable duration of the period of time between a minimum and the following maximum; the agreement becomes apparent also from the coincidence of an unusual cold wave at the close of the eighteenth century with an accelerated and intensified sunspot activity<sup>3</sup> at the same time. In conclusion I should like to add that I consider this 89-year periodicity not as a single period, but as a resonance or interference phenomenon at the coincidence of probably numerous independent periods, of which, however, no individual one has any considerable amplitude.

It would be interesting to test whether the 89-year oscillation comes more plainly into view in middle Europe (as here for western Europe) in my newly revised data (*Les hivers*).—Translated by W. W. Reed.

#### COMMENTS ON THE INFLUENCE OF VEGETATION ON STREAMFLOW

By FRANCIS E. COBB, President and State Forester

[North Dakota School of Forestry, Bottineau, N. Dak., February 7, 1931]

I am much interested in the article<sup>4</sup> by Harry B. Humphrey and B. C. Kadel in regard to the influence of trees on stream discharge.

A small stream, Oak Creek, flows along the border of our campus, originating in springs located about 4 or 5 miles in the foothills of the Turtle Mountains. This is an intermittent creek and it is very common for this stream to discontinue flowing during the summer. In dry springs it may not flow after June. Sometimes it continues as late as August and occasionally runs throughout the year. However, it is commonly noticed that in the summer when it does not flow it always begins flowing as far down as we are located in the fall after the leaves have fallen from the trees. Sometimes it starts to flow even earlier than this. The article in question would lead me to believe that the growth of trees, which is quite heavy along its entire course to where we are located, have a great deal to do with the discontinuance of the flow during their growing period. It has often been wondered why after a dry summer it

should begin in the fall even before the freezing of the ground, and this is apparently an explanation.

An article also in this same issue in regard to the passing of the mirage from the Weather Bureau at Dodge City, Kans., is also of interest.

We are a cooperative observer of the Weather Bureau at Bismarck and are naturally interested in all phenomena relative to weather conditions. Southeast of this town on clear, warm days during the entire summer a mirage lies, giving the appearance of a very large lake with tall trees on the banks and looks as though the farm houses in that section were entirely flooded, except for their upper stories. This entire territory is in crop and apparently no difference appears whether the crop is growing or harvested. I merely note this as a matter of interest inasmuch as here it does not depend on whether the prairie is bare or in crop.

#### ARCTIC WEATHER STATIONS

By C. F. TALMAN

Just as, in the Southern Hemisphere, an outpost for weather observations maintained by the Argentine Government at Laurie Island, in the subantarctic South Orkneys, is operated by a small party who spend a year in complete isolation—being then replaced by another party—so in the far north the Russian Government has a number of weather stations whose staffs are relieved annually. The most northerly is the one established in Franz Josef Land in 1929. These arctic stations, like the one at Laurie Island, are equipped with radio.

Last summer the ice breaker *Sedov* visited the station in Franz Josef Land, where the seven members of the staff were found in good health. They were replaced by a new staff of 10 men and 1 woman. The latter, the wife of the director, is to conduct biological investigations.

From Franz Josef Land the *Sedov* proceeded through ice fields to the archipelago north of the Taimyr Peninsula formerly known as Emperor Nicholas II Land but now called Severnaya Zemlya (Northern Land). Some previously unknown islands were discovered, including a group of small ones to which the name Kamenev Islands was given, and in one of these a new station was established, in latitude 79° 24' north and longitude 91° 3' east. Four men were left here, with provisions for three years.—*Why the Weather—Scientific Service (Inc.)*.

#### LIGHTNING FROM A CLEAR SKY, JANUARY 20, 1931

By FRED MYERS

[Weather Bureau, Tatoosh Island, January 20, 1931]

At 4:17 a. m. a flash of lightning was observed overhead and slightly toward the north. The sky was clear with about 2 strato-cumulus clouds along the horizon from the southwest to the northwest. There were six or eight flashes from 4:17 a. m. to 4:32 a. m., no more being observed until 5:15 a. m. when a single flash occurred in about the same location as the others.

Light rain had been falling during the night, ending about 2:45 a. m., the sky clearing by 4 a. m., the stars were shining brightly and the clouds could be seen distinctly in the west. The lightning appeared to flash across the sky and not to the ground. No thunder followed the flashes. This is the first time lightning has occurred from a clear sky at this station as far as can be determined.

The wind was from the south about 23 miles per hour, the temperature 48°; the barometer 30.16 and humidity 92 per cent at 4:45 a. m. (120 meridian time).

<sup>1</sup> This is Table 5 in the original text.

<sup>2</sup> C. Easton. *Peterm. Mitt.* 1905 and *Proceedings Kon. Akad. v. Wetensch. te Amsterdam*, 4/5, 5/6, *Bd. VII, VIII*.

<sup>3</sup> Compare *Astronom. Mitt.*, R. Wolf and A. Wolfer. Zurich. A sunspot curve for 1745-1875 by W. H. Meyer is published in *Das Weltgebäude*, 1896, p. 295.

<sup>4</sup> See *MONTHLY WEATHER REVIEW*, October, 1930, vol. 58, p. 397, ff.